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09/966,898	09/28/2001	Rory Van Tuyl	10011143-1	4361

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EXAMINER	
CHANG, EDITH M	

ART UNIT	PAPER NUMBER
2637	

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicati n No.	Applicant(s)	
	09/966,898	TUYL, RORY VAN	
	Examin r	Art Unit	
	Edith M Chang	2637	

-- Th MAILING DATE of this communication app ars on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. §.133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 September 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 September 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *013003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 1-10 and 17-20 are objected to because of the following informalities:

Claim 1, line 1: "comprising" is suggested changing to "comprising the steps of".

Claim 17, line 3: "comprising" is suggested changing to "comprising the steps of".

Claims 2-10 and 18-10 are directly or indirectly dependent on the objected claims 1 and 17.

Appropriate correction is required.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 14-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 14 is dependent on the claim 11 wherein an apparatus comprising a modulator modulating a second signal with a first signal to provide a third signal, a detector; in claim 14, the apparatus further comprising a filter for filtering the third signal and means for measuring the filtered signal. The construction of the apparatus is not described or taught in the figure 6 or the figure 8, wherein the figure 6 and figure 8 disclose different embodiments.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 3-7, 9, and 11-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3, line 5 & Claim 4, lines 1-2: "relative strengths" does not clearly indicate the strengths of the frequency components relative to what (the reference relative to). The term "relative" has to have the reference relative to.

Claim 6, line 8 & Claim 7, line 2: "said filtered signal" does not clearly indicate that it is the "said filtered signal" cited in line 5 or in line 6.

Claim 11, line 2: "a second signal with a first signal" does not clearly indicate what is the difference of the "a second signal" and " a first signal" from the "first and second signals" cited in the line 1.

Claim 16, line 1: "said detector" " does not clearly indicate that it is the "a detector" recited in line 4 of claim 11 or the "a detector" recited in line 3 of claim 15.

Claim 17, lines 4 & 7: "said first signal" lacks antecedent basis; and line 10: "said measured fundamental frequency" lacks antecedent basis.

Claim 18, line 1: "said first signal" lacks antecedent basis; and line 3: "said second signal" lacks antecedent basis.

Claim 19, lines 1-2: "said step of measuring a strength of the fundamental frequency of said third signal" lacks antecedent basis.

Claims 5, 9, 12-15 and 20 are dependent on rejected claims 4, 11 and 17.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4, 8-14 and 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Dorschky et al. (EP 0975104 A1).

To claims 1-2 & 11-12, Dorschky teaches a method and apparatus for generating a modulated optical return to zero signal in Fig.1 and Abstract (57). In Fig.1, the apparatus comprises:

the optical modulator 4 (column 3 line 27) modulating a return to zero RTZ signal at RZ (the second signal) with the non return to zero data D (column 4 line 18 non-RTZ, the first signal) to provide the output signal O; and

the filter 7 and multiplier 8 (filter and multiplier as detector) to detect frequency components with the fundamental frequency being indicated the aligning between the RTZ and the non-RTZ signal as shown in Fig.5a (aligned) and Fig.5b (not aligned) (page 1 (57) the last paragraph of the right column).

To claim 3, in Fig.3b Dorschky teaches the data D encoded in a binary pattern "1010..."; in Fig.3a the Return-to-Zero pulses of the RTZ signal at RZ having a frequency equal to the data interval of the D in FIG.3b; and in FIG.1, the filter 7 and multiplier 8 determining the frequency components of the O/third signal as shown in Fig.5 (column 5 lines 51-56 wherein the filter automatically determining the relative strengths of the frequency components in the frequency band of the filter).

To claims 4 & 14, in Fig.1 and column 5 line 51-column 6 line 7, Dorschky teaches filtering the O signal output from the demodulator (O to filter 7) and detecting a level of the filtered signal (such as at t_1) being indicative of the phase deviation/time alignment shown in Fig.5a and Fig.5b via the means of photo converter converting the optical signals to electrical signals, the filter 7 and multiplier measuring the electrical filtered signals as show in the Fig.5 (column 5 line 51-56).

To claims 5 & 20, in Fig.3, Dorschky teaches converting the filtered signal to a DC voltage in Fig.3b wherein the V_D is converted to the DC voltage (as the amplitudes of the flat part of the signal) measured in the Fig.3b.

To claim 8, in FIG.5 (a), Dorschky teaches the correct alignment measured from the signals from the filter, wherein the output of the modulator O is the NRZ at $t_1, t_3,$ etc., so the frequency of the O signal (the third signal) is half of the RZ signal at $t_1, t_2, t_3, t_4,$ etc. (the second signal) stated in column 4 lines 48- 58.

To claim 9, in Fig.1 Dorschky teaches filtering the O signal (the third signal) with the low pass filter 7.

To claim 10, in Fig.1, Dorschky teaches the photo converter 6 converting the optical signals comprised in the RZ and D (non-RZ) signals (column 3 lines 26-30).

To claim 13, in Fig.1, Dorschky teaches a voltage controlled oscillator element 2 (which is the clock, column 3 lines 35-37), and the circuit provides the signal C to control the time delay of the element 2 wherein the circuit is the feedback loop comprising elements 6 to 10 of Fig.1 (stated in section [0014]).

To claims 17-18, in Fig.1, Fig.5a and Fig.5b, Dorschky teaches the optical modulator 4 (column 3 line 27)

modulating a return to zero RTZ signal at RZ (the second signal with the RZ pulse signal shown in Fig.1 and Fig.3a) with the non return to zero data D (column 4 line 18 non-RTZ, the first signal) to provide the output signal O (as the second signal with the non-RTZ format Fig.3b);

measuring a strength of the RZ signal in Fig.5 a) and Fig.5b at different timings (t_1, t_2, t_3, t_4, etc.). The strength is indicate the alignment, i.e. at t_1 in Fig.5a the strength is stronger than the Fig.5b so as at t_2, t_3, etc. (column 4 lines 48- 58); and

adjusting the timing between the D signal (non-RZ the first signal) and the pulse in RZ (the second signal) via the feedback signal form the error control voltage C in Fig.1 (page 1 section (57) the third paragraph, column 5 line 56-column 6 line 7).

To claim 19, Dorschky teaches filtering (filter 7 Fig.1) and measuring (P_O Fig.3c and Fig.5) the strength of the output signal O.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dorschky et al. (EP 0975104 A1) in view of Little et al. (US 5,267,071).

To claim 15-16, though Dorschky et al. does not explicitly show the measuring mean to plot the Fig.3, however Little et al. teaches the well known RF detector to measure the envelope of the optical signal from the filter in FIG.5 of the 415 detector integrator of FIG.4. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the RF detector as the measuring means taught by Little et al. to measure the amplitude of the filtered signal shown in Fig.3 of Dorschky et al. for the purpose of measuring and delivering high quality signals (column 3 lines 29-31).

Allowable Subject Matter

10. Claims 6 and 7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or suggest, alone or in a combination, among other things, at least an apparatus for time aligning two signals and its method as a whole, the

combination of elements and features, which includes detecting a first time delay value when the filtered modulating output signal is at a minimum level; detecting a second time delay value when the filtered modulating output signal is at a minimum level which is next to the minimum level of the first time delay; and setting a time delay value for the modulating RZ signal at a time delay value which is equals to the half of the first time delay value adding (+) the second time delay value.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 571-272-3041. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayanti Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
January 14, 2005

YOUNG T. TSE
PRIMARY EXAMINER